

**STANDARDS PRESENTATION  
TO  
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

Attachment No. 1

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PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

Division 1, Chapter 4, Subchapter 7. General Industry Safety Orders  
Group 1. General Physical Conditions and Structures  
Article 4. Access, Work Space, and Work Areas

Section 3277. Fixed Ladders.

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(b) Definitions.

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Cage. A cage is a guard that may be referred to as a cage or basket guard, which is an enclosure that is fastened to the side rails of the fixed ladder or to the structure to encircle the climbing space of the ladder for the safety of the person who must climb the ladder.

Carrier. The track of a ladder safety system consisting of a flexible cable or rigid rail, which is secured to the ladder or structure by mountings. [Ed note: A14.3-2002 definition]

Cleats. Cleats are ladder crosspieces of rectangular cross section placed on edge on which a person may step in ascending or descending.

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~~Ladder Safety Device. A ladder safety device is any device, other than a cage or well, designed to eliminate or reduce the possibility of accidental falls and which may incorporate such features as life belts, friction brakes, and sliding attachments.~~

Ladder Safety System. An approved assembly of components whose function is to arrest the fall of a user. The ladder safety system shall include the carrier and its associated attachment elements (brackets, fasteners, etc.), safety sleeve, full body harness and connectors, wherein the carrier is permanently attached to the climbing face of the ladder or immediately adjacent to the structure. [Ed note: A14.3-2002 definition.]

Pitch. Pitch is the included angle between the horizontal and the ladder, measured on the opposite side of the ladder from the climbing side.

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Rungs. Rungs are ladder crosspieces on which a person may step in ascending or descending.

Safety Sleeve. The part of a ladder safety system consisting of the moving component with locking mechanism that travels on the carrier and makes the connection between the carrier and the full body harness. [Ed note: A14.3-2002 definition]

Side-Step Ladder. A side-step ladder is one from which a person getting off at the top must step sideways from the ladder in order to reach the landing, such as shown in Fig. 3.

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(f) Clearance.

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(7) ~~Counterweighted~~ All hatch covers shall open a minimum of 60 degrees from the horizontal. The distance from the center line of rungs or cleats to the edge of the hatch opening on the climbing side shall be not less than 24 inches for offset wells or 30 inches for straight wells. There shall be no protruding potential hazards within 24 inches of the center line of rungs or cleats; any such hazards within 30 inches of the center line of the rungs or cleats shall be fitted with deflector plates placed at an angle of 60 degrees from the horizontal as indicated in Fig. 8. The relationship of a fixed ladder to an acceptable ~~counterweighted~~ hatch cover is illustrated in Fig. 9.

(g) Cages or Wells.

(1) Construction. Cages or wells shall be built as shown on the applicable drawings, covered in detail in Figs. 1, 10, and 11, or of equivalent construction.

EXCEPTION: Chimney ladders and manholes and underground vaults.

(2) Dimensions and Maximum Length. Cages or wells (except as provided under subsection (m)(5)) conforming to the dimensions shown in Figs. 1, 10, and 11 shall be provided on ladders of more than 20 feet to a maximum unbroken length of 30 feet.

EXCEPTIONS:

(1) Fixed ladders on fire hose drying towers are not required to have a cage, well, offset platform, or ladder safety device if they do not exceed 30 feet in length and provided their use is restricted to trained fire fighters or others equally trained in ladder use.

(2) Fixed ladders on outdoor advertising structures covered by Article 11. ~~where employees wear and use approved safety belts and lanyards which can be utilized if a rest period is required.~~  
[Ed note: Revised for consistency with proposed changes to Section 3416]

(3) Top of Cage. Cages shall extend a minimum of 42 inches above the top of landing, unless other acceptable protection is provided.

(4) Bottom of Cage. Cages shall extend down the ladder to a point not less than 7 feet nor more than 8 feet above the base of the ladder, with the bottom flared not less than 4 inches, ~~or portion of cage opposite ladder shall be carried to the base.~~ When the ladder terminates on a landing platform or walkway at an elevation greater than 30 inches above the ground, a ladder cage extension shall be provided from the bottom of the cage to the top of the guardrail when the distance from the plane of the ladder rungs to the guardrail is equal to or less than that shown in Figure 11, "Ladder Cages at Elevated Locations."

(A) When the guardrail is located at a distance greater than that shown in Figure 11, a ladder cage extension need not be provided.

(B) The ladder cage extension or equivalent shall be constructed as follows:

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- (1) The ladder cage extension or equivalent shall be capable of withstanding a force of at least 200 pounds applied horizontally at any point.
- (2) The ladder cage extension or equivalent shall be of solid construction, grille work with vertical bars located at a maximum spacing of 9-1/2 inches, center-to-center, or of slat-work with openings between slats not more than 4 vertical inches.
- (3) The ladder cage extension or equivalent shall be free of hazardous projections.
- (4) The ladder cage extension or equivalent shall be provided not less than two feet each side of the ladder center line where there is an exposure.
- (5) Vertical guardrail extensions may be used as equivalent construction for the ladder cage extension provided they are as high as the bottom of the cage opening and they comply with the provisions of (g)(4)(B).

(5) Size of Cage. Cages shall not extend less than 27 nor more than 30 inches from the center line of the rungs of the ladder. The ~~C~~cage shall not be less than 27 inches in width. The inside shall be clear of projections. Vertical bars shall be located at a maximum spacing of 9-1/2 inches, center-to-center around the circumference.

(6) Ladder Wells. Ladder wells shall have a clear width of at least 15 inches measured each way from the center line of the ladder. (See Fig.1.) Smooth-walled wells shall be a minimum of 27 inches and a maximum of 30 inches from the center line of rungs to the well wall on the climbing side of the ladder. Where other obstructions on the climbing side of the ladder exist, there shall be a minimum of 30 inches from the center line of the rungs.

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(j) Landing Platforms.

(1) When ladders are used to ascend to heights exceeding 20 feet ~~(except on chimneys)~~, landing platforms shall be provided as follows: for each 30 feet of height or fraction thereof, except that,

(A) ~~Where no cage, well, or ladder safety device system~~ is provided, landing platforms shall be provided for each 20 feet of height or fraction thereof.

(B) Where a cage or well is provided and no ladder safety system is provided, landing platforms shall be provided for each 30 feet of height or fraction thereof.

(C) Each ladder section shall be offset from adjacent ladder sections at each landing.

(D) Where installation conditions (even for a short, unbroken length) require that adjacent sections be offset, landing platforms shall be provided at each offset: [See Subsection (m)].

EXCEPTIONS to subsection (j)(1):

1. Ladders ~~in underground mines, those~~ used primarily in construction operations, fire escape ladders, and ladders equipped with treads.

2. Ladders on high-voltage transmission towers, chimneys, smoke stack ladders, water tower ladders and similar fixed ladders on permanent installations which are used either infrequently or for emergency only, provided the employee who uses the ladder is supplied with and wears

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~~an approved personal fall protection equipment belt, with safety straps attached~~, which can be utilized if a rest period is required.

3. Ladders in underground mines as covered by the Mine Safety Orders.

(2) Where an employee has to step a distance greater than 12 inches from the center line of the rung of a ladder to the nearest edge of structure or equipment, a landing platform shall be provided. The minimum step-across distance shall be 2 1/2 inches (Figure 7).

(3) All landing platforms shall be equipped with guardrails and toeboards, so arranged as to give safe access to the ladder. Platforms shall be not less than 24 inches in width and 30 inches in length.

(4) One rung of any section of ladder shall be located at the level of the landing laterally served by the ladder. Where access to the landing is through the ladder, the same rung spacing as used on the ladder shall be used from the landing platform to the first rung below the landing (Figure 10).

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(m) Ladder Safety ~~Devices~~ Systems. Ladder safety ~~devices~~ systems may be used on tower, water tank, and chimney ladders over 20 feet in unbroken length in lieu of cage protection. No landing platform shall be required in these cases. All ladder safety systems ~~devices such as those that incorporate life belts, friction brakes, and sliding attachments~~ shall meet the design requirements of the ladders which they serve. [See subsection (c)-].

~~(Title 24, Part 2, Section 2 33059(r))~~

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Fig. 11  
~~Cages—Special Applications~~ Ladder Cages at Elevated Locations

